

REMARKS

At the outset, the Examiner is thanked for the thorough review and consideration of the pending application. The Office Action dated October 2, 2006, has been received and its contents carefully reviewed.

Claims 1-11, 15, 16, 18 and 20 are rejected to by the Examiner. With this response, claims 1, 2, 4-6, 8, 9, and 11 have been amended. No new matter has been added. Claims 1-11, 15, 16, 18 and 20 remain pending in this application.

In the Office Action, claims 1-7, 15, 16 and 18 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Publication No. 2001/0038372 to Lee (hereinafter "Lee") in view of U.S. Patent No. 5,123,059 to Hiroswawa et al. (hereinafter "Hiroswawa"). Claims 8-11 and 20 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Lee and Hiroswawa and further in view of U.S. Publication No. 2001/0043178 to Okuzono et al. (hereinafter "Okuzono").

The rejection of claims 1-7, 15, 16 and 18 under 35 U.S.C. § 103(a) as being unpatentable over Lee in view of Hiroswawa is respectfully traversed and reconsideration is requested. Applicant submits that Lee and Hiroswawa, analyzed singly or in combination do not teach or suggest each and every element of the claims.

Independent claim 1 recites a method of driving a liquid crystal display having a combination of features including "generating modulated current most significant bit data in accordance with a difference between the delayed most significant bit data and the current most significant bit data and independently from the least significant bit data."

Applicant submits that Lee does not teach or suggest at least the above identified combination of elements, for example the Examiner cites function block 460 of FIG. 14 as performing the function of "modulating the current most significant bit data in accordance with a difference between the delayed most significant bit data and the current most significant bit data." However the output of block 460 is not determined "independently from the least significant bit data."

To cure deficiencies in the teachings of Lee, the Examiner relies on Hiroswawa as teaching "wherein the modulated current most significant bit data contains more data bits than do each of the current most significant bit data and the delayed most significant bit data." Applicant does not reach the Examiner's conclusions regarding the teachings of Hiroswawa. Applicant submits

that Hirosawa does not cure the deficiencies in Lee with regards to “modulating the current most significant bit data in accordance with a difference between the delayed most significant bit data and the current most significant bit data.” Applicant submits that Lee and Hirosawa, analyzed singly or in combination do not teach or suggest at least the above-identified combination of elements recited in claim 1. Accordingly Applicant respectfully submits that claim 1 and claims 2-4, 15, and 16 depending from claim 1 are each allowable over Lee and Hirosawa.

Claim 5 recites a driving apparatus for a liquid crystal display having a combination of features including “a modulator to modulate the most significant bits of data of data including most significant bits of data and least significant bits of data of the n^{th} frame in accordance with a difference between the most significant bits of data for the $(n-1)^{\text{th}}$ frame and the most significant bits of data for the n^{th} frame and independently of the least significant bits of data.”

In the Office Action, the Examiner rejects claim 5 using rationale identical to that used to reject claim 1.

Applicant submits that Lee does not teach or suggest the above identified combination of features. For example, the function block 460 of Lee as cited by the Examiner does not teach “a modulator to modulate the most significant bits of data ... of the n^{th} frame in accordance with a difference between the most significant bits of data for the $(n-1)^{\text{th}}$ frame and the most significant bits of data for the n^{th} frame and independently of the least significant bits of data.”

To cure deficiencies in the teachings of Lee, the Examiner relies on Hirosawa as teaching “wherein the modulated current most significant bit data contains more data bits than do each of the current most significant bit data and the delayed most significant bit data.” Applicant does not reach the Examiner’s conclusions regarding the teachings of Hirosawa. Applicant submits that Hirosawa does not cure the deficiencies in Lee with regards to “a modulator to modulate the most significant bits of data of data including most significant bits of data and least significant bits of data of the n^{th} frame in accordance with a difference between the most significant bits of data for the $(n-1)^{\text{th}}$ frame and the most significant bits of data for the n^{th} frame and independently of the least significant bits of data,” as recited in claim 5. Applicant submits that Lee and Hirosawa, analyzed singly or in combination do not teach or suggest at least the above-identified combination of elements recited in claim 5. Accordingly Applicant respectfully submits that

claim 5 and claims 6, 7, and 18 depending from claim 5 are each allowable over Lee and Hirosawa.

The rejection of claims 8-11 and 20 under 35 U.S.C. § 103(a) as being unpatentable over Lee in view of Hirosawa and further in view of Okuzono is respectfully traversed and reconsideration is requested.

With respect to claim 8, Claim 8 depends from claim 5 and includes by reference all of the limitations of claim 5.

As Applicant has discussed above, Lee and Hirosawa do not teach all of the limitations of claim 5. The Examiner relies on Okuzono to cure deficiencies in the teachings of Lee and Hirosawa. In particular, the Examiner cites Okuzono as teaching “a timing controller supplying video data to the input line and concurrently controlling the data driving and the gate driver.” Applicant does not reach the Examiner’s conclusion regarding the teachings of Okuzono. Applicant submits that Okuzono does not cure the deficiencies identified in the teachings of Lee and Hirosawa with regards to the elements recited in claim 5, and that Lee, Hirosawa, and Okuzono, analyzed singly or in any combination, do not teach or suggests all of the elements recited in claim 5. Accordingly, Applicant respectfully submits that claim 5, and claim 8 depending from claim 5 are allowable over Lee, Hirosawa, and Okuzono.

Claim 9 recites a liquid crystal display having a combination of features including “a data modulator to modulate the most significant bits of the RGB data based on a look-up table storing modulated most significant bits of the RGB data, wherein the modulated most significant bits of the RGB data contain more data bits than do the most significant bits of the RGB data and wherein the least significant bits of the RGB data bypass the modulator.”

Applicant submits that Lee does not teach or suggest at least the above identified combination of elements, for example the Examiner (relying on the rationale used to reject claim 1) cites function block 460 of FIG. 14 as performing the function of “to modulate the current most significant bit data in accordance with a difference between the delayed most significant bit data and the current most significant bit data.” In describing the functionality of block 460 Lee states the following at paragraph 141:

The calculator 464 receives the LSB 4-bit gray data $G_m[4:7]$ of the present frame from the combiner 410, the LSB 4-bit gray data $G_{m-1}[4:7]$ of the previous frame from the frame memory 420, the variables f , a and b to modify the moving

pictures from the lookup table. Then it performs a predetermined computation and outputs first modified gray data $G_m'[0:7]$ to the divider 450.

Applicant submits that Lee does not teach “a modulator to modulate the most significant bits of the RGB data based on a look-up table storing modulated most significant bits of the RGB data... wherein the least significant bits of the RGB data bypass the modulator.” For example, the intermediate variables “f, a, b” which are the output of block 420 of Lee, do not constitute “most significant bits of data”, and the LSB bit data is an input to block 464 and thus does not “bypass the modulator” as recited in claim 9.

To cure deficiencies in the teachings of Lee, the Examiner relies on Hirose to teach “wherein the modulated current most significant bit data contains more data bits than do each of the current most significant bit data and the delayed most significant bit data.” The Examiner additionally relies on Okuzono to teach “a timing controller rearranging video data received from an input data and outputting RGB data.” Applicant does not reach the Examiner’s conclusions regarding the teachings of Hirose and Okuzono. Applicant submits that Okuzono and Hirose do not cure the deficiencies in Lee with regards to “a data modulator to modulate the most significant bits of the RGB data based on a look-up table storing modulated most significant bits of the RGB data, wherein the modulated most significant bits of the RGB data contain more data bits than do the most significant bits of the RGB data and wherein the least significant bits of the RGB data bypass the modulator,” as recited in claim 9. Applicant submits that Lee, Okuzono, and Hirose, analyzed singly or in any combination do not teach or suggest at least the above-identified combination of elements recited in claim 9. Accordingly Applicant respectfully submits that claim 9 and claims 10, 11, and 20 depending from claim 9 are each allowable over Lee, Okuzono, and Hirose.

Applicant believes the foregoing amendments and remarks place the application in condition for allowance and early, favorable action is respectfully solicited.

If for any reason the Examiner finds the application other than in condition for allowance, the Examiner is requested to call the undersigned attorney at (202) 496-7500 to discuss the steps necessary for placing the application in condition for allowance. All correspondence should continue to be sent to the below-listed address.

If these papers are not considered timely filed by the Patent and Trademark Office, then a petition is hereby made under 37 C.F.R. § 1.136, and any additional fees required under 37

C.F.R. § 1.136 for any necessary extension of time, or any other fees required to complete the filing of this response, may be charged to Deposit Account No. 50-0911. Please credit any overpayment to deposit Account No. 50-0911. *A duplicate copy of this sheet is enclosed.*

Respectfully submitted,

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By



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